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State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-14-3
Relating to Exemptions under Section 27156
of the Vehicle Code

ALBANO ENTERPRISES, INC.
"AIR JET"

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Section 39023 of the Health and Safety Code;

IT IS ORDERED AND RESOLVED: That the installation of the "Air Jet" manufactured by Albano Enterprises, Inc., has been found to not reduce the effectiveness of required motor vehicle pollution control devices and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for 1972 to 1974 model-year vehicles with engines greater than 140 CID.

The device consists of a relief valve with a filter and can be identified by "Albano T.M. Air Jet" stamped at the bottom of the housing. The valve is inserted between the PCV valve and the intake manifold and permits a small amount of additional air to enter the PCV line.

This Executive Order is valid provided that installation instructions for this device will not recommend tuning the vehicle to specifications different than those listed by the vehicle manufacturer.

Changes made to the design or operating conditions of the device as originally submitted to the Air Resources Board for evaluation that adversely affect the performance of the vehicle's pollution control devices shall invalidate this Executive Order.

Marketing of this device using an identification other than that shown in this Executive Order or marketing of this device for an application other than those listed in this Executive Order shall have prior approval of the Air Resources Board.

This Executive Order does not constitute any opinion as to the effect that the use of this device may have on any warranty either expressed or implied by the vehicle manufacturer.

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THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF THE "AIR JET" DEVICE.

No claim of any kind, such as "Approved by Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communication.

Section 17500 of the Business and Professions Code makes unlawful untrue or misleading advertising and Section 17534 makes violation punishable as a misdemeanor.

Sections 39130 and 39184 of the Health and Safety Code provide as follows:

"39130. No person shall install, sell, offer for sale, or advertise, or, except in an application to the board for certification of a device, represent, any device as a motor vehicle pollution control device unless that device has been certified by the board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as a certified device which, in fact, is not a certified device. Any violation of this section is a misdemeanor."

"39184. (a) No person shall install, sell, offer for sale, or advertise, or, except in an application to the board for accreditation of a device, represent, any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been accredited by the board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as an accredited device which, in fact, is not an accredited device. Any violation of this subdivision is a misdemeanor."

Any apparent violation of the conditions of this Executive Order will be submitted to the Attorney General of California for such action as he deems advisable.

Executed at Sacramento, California, this 9 day of April, 1974.

WILLIAM SIMMONS
Executive Officer

State of California

AIR RESOURCES BOARD

March 27, 1974

Staff Report

Evaluation of the Albano Enterprises, Inc.
"Air Jet Intake Manifold Air Bleed Valve"
for Exemption from the Prohibitions of
Section 27156 of the Motor Vehicle Code

I. Introduction

Albano Enterprises, Inc., of Santa Ana, California has applied for exemption from the prohibitions of Section 27156 of the Vehicle Code for its "Air Jet Intake Manifold Air Bleed Valve". This section prohibits the installation of any device which reduces the effectiveness of the motor vehicle emission control system. The applicant is requesting the exemption be granted for 1972 to 1974 model-year vehicles.

The applicant was previously granted an exemption for his "Air Jet" device by Resolution No. 70-54-C, dated March 15, 1972, for 1971 and older model-year vehicles. The present application is for a device identical to the previously evaluated valve.

II. System Description and Function

The "Air Jet" device is inserted in the PCV line between the PCV valve and the carburetor or intake manifold. According to the applicant, this device improves engine performance and fuel economy.

This device consists of a filter, metal disc (7/8 inch diameter, 1/4 inch high), orifice plate (10 holes, .094 inch diameter/hole), two springs, threaded top plate (10 holes, .094 inch diameter/hole), and metal housing with two 3/16 inch ID ports - used to insert the valve in the line which connects the PCV valve to the carburetor plate - and an air inlet port of 1 inch ID opening; this opening is vented to the atmosphere.

The device has a modulating poppet which controls the amount of air leak into the intake manifold. Engine vacuum determines the degree of valve opening. High engine vacuum (deceleration, low cruise and idle operating modes) partly closes the valve, thereby reducing the amount of air flow allowed. The valve is opened to its maximum position at low manifold vacuum (wide open throttle or heavy acceleration) which results in the highest air flow through the device. The valve is also open when the engine is not operating. A disc is inserted between the orifice plate and threaded plate to prevent possible flame propagation from excessive back pressure.

III. System Evaluation

A. Applicant's Data

The applicant submitted exhaust emission and bench flow data on his device. Emission tests were conducted on 1971 and older model-year vehicles with engines over 140 CID which were not representative of vehicles for the model years specified in the

present application. Some tests were also performed at 55 mph which were not conclusive to determine the effects of the device on emissions.

The applicant submitted total air flow data to the engine by measuring the combined flow through the air bleed port and through the PCV valve connection. Maximum total air flow of 1.8 CFM to the engine occurred at 0 inches to 10 inches Hg. At higher vacuum ranges 10 inches to 20 inches Hg., the flow to the engine was approximately 0.80 CFM.

B. Bench Flow Test Performed by ARB

The Air Resources Board laboratory conducted two bench flow tests with two "Air Jet" devices. These tests measured the air bleed rate by varying the vacuum downstream from the valve with one of the inlet ports closed. The ranges of vacuum used in the tests are those experienced during normal engine operation. In the two tests, the maximum flow rates of 2.2 to 3.1 CFM were observed when the vacuum varied between 0 inches to 6 inches Hg. Under normal road load, vehicles operate in this vacuum range for a minimal period. The staff considers the volume of air that flows through the Air Jet into the intake manifold during this period to be insignificant. The maximum flow rates were 0.57 CFM to 0.37 CFM for the two tests when the vacuum exceeded 6 inches Hg (Reference Figures 1 and 2).

The ARB staff uses maximum air-bleed limits as a basis of judgment for the leaning effect of the device. The tests show the air flow permitted by this device exceeded the established maximum flow limit for engines having 140 cubic inch displacement (CID) or less, but met the criteria for vehicles with engines having greater than 140 CID.

C. Exhaust Emission

Previous exhaust emission criteria were established for 1966-1970 model-year engines using various air bleed devices. The allowable air bleeds are 0.5 CFM for engines with 140 CID and smaller and 0.90 CFM for engines with greater than 140 CID.

Due to the more stringent exhaust emission control requirements for 1971 and later model-year vehicles, the maximum air bleed has been established at 0.30 CFM for engines with 140 CID or smaller and 0.50 CFM with engines larger than 140 CID. These values have been judged by the staff to not have a significant effect on the performance of the exhaust emission control system.

D. Fuel Evaporative Emissions

Since the air bleed port of the valve is normally open with the engine shut off, fuel vapor from the engine induction system can escape to the atmosphere directly through the valve. The Air Resources Board laboratory conducted a test on a 1972 350 CID Chevrolet to measure the quantity of fuel vapor that would escape to the atmosphere by the charcoal canister technique. To stabilize engine temperatures, the vehicle was operated on the dynamometer with the "Air Jet" device installed. Immediately following the warm-up period the canister was installed for the soak test. The vehicle was placed in the soak room for twelve hours before a gravimetric measurement of the canister weight change was made. Based on the results of the test, the 0.3

grams of fuel vapor escaping directly through the device is not significant relative to the standard of 2 grams of hydrocarbons per test allowed by Federal Regulations.

IV. Conclusions and Recommendation

The air flow permitted by this device is greater than the established criterion for vehicle engines having 140 CID or smaller, but less than permitted for engines larger than 140 CID.

The staff is of the opinion that the "Air Jet" device would therefore be in violation of Section 27156 of the Vehicle Code for vehicles having 140 CID or smaller engines.

Therefore, the staff recommends that Albano Enterprises, Inc., should be granted an exemption from the provisions of Section 27156 for 1972 to 1974 model-year vehicles with engines greater than 140 CID.

FIGURE I - BLEND FLOW OF ALBANO AIR JET DEVICE

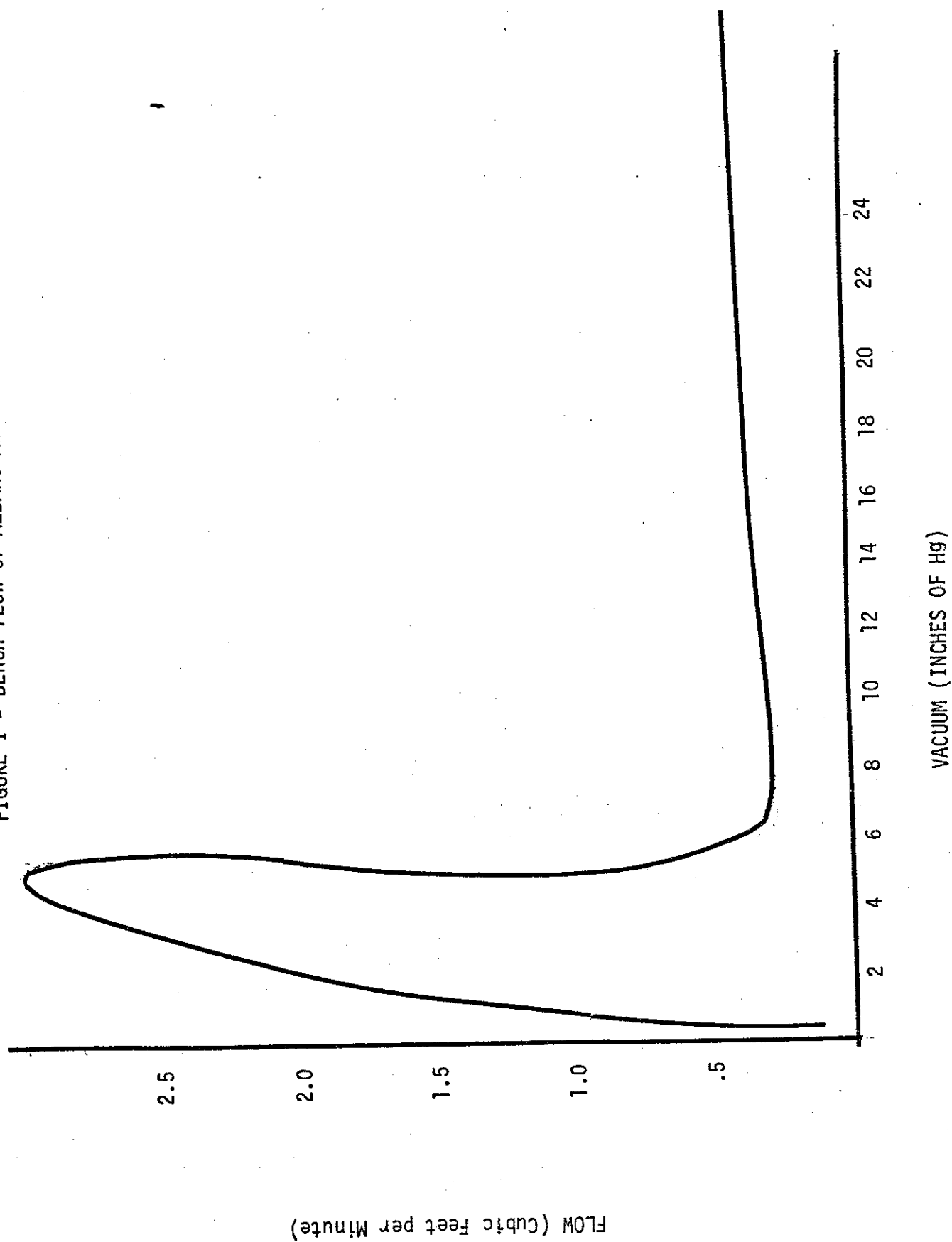


FIGURE 2 - BENCH FLOW OF ALBANO AIR JET DEVICE

